of interleaved converter circuits operating into a common load, comprising:

a plurality of pulse width modulators each controlling power switching devices of one of the plurality of interleaved converter circuits;

a feedback circuit responsive to a voltage across the common load;

control circuits for controlling the plurality of pulse width modulators responsive to the feedback circuit and a commanded output voltage, and for adjusting a nominal duty cycle of the plurality of interleaved converter circuits;

the plurality of pulse width modulators and the control circuits being in a single integrated circuit.

23. The DC to DC switching circuit of claim 22 further comprising a current sense circuit for balancing current in the plurality of interleaved converter circuits.

24. The DC to DC switching circuit of claim 22 further comprised of an integrator having an output responsive to the integral of an error signal, the error signal being responsive to the voltage across the common load and a desired voltage, the control circuits also being responsive to the output of integrator.

25. The DC to DC switching circuit of claim 24 wherein a time constant of the integrator is adjustable by the

selection of at least one component external to the integrated circuit.

26. The DC to DC switching circuit of claim 24 further comprised of a differentiator having an output responsive to the rate of change of the voltage across the common load, the control circuits also being responsive to the output of differentiator.

27. The DC to DC switching circuit of claim 26 wherein the time constant of the differentiator is adjustable by the selection of at least one component external to the integrated circuit.

28. The DC to DC switching circuit of claim 22 wherein the control circuits are also responsive to rapid decreases in the voltage across the common load to turn on the plurality of converter circuits independent of the phase of the plurality of pulse width modulators.

29. The DC to DC switching circuit of claim 28 wherein the control circuits are also responsive to rapid increases in the voltage across the common load to turn off the plurality of converter circuits independent of the phase of the plurality of pulse width modulators.

30. The DC to DC switching circuit of claim 22, wherein the plurality of pulse width modulators consist of a pair of pulse width modulators.

31. The DC to DC switching circuit of claim 22 wherein the feedback circuit is in the single integrated circuit.

32. A DC to DC switching circuit for controlling power switching devices in a DC to DC converter having a plurality of interleaved converter circuits operating into a common load, comprising:

a plurality of pulse width modulators each controlling power switching devices of one of the plurality of interleaved converter circuits;

a feedback circuit responsive to a voltage across the common load;

control circuits being responsive to the feedback circuit and a commanded output voltage to control a nominal duty cycle of the plurality of converter circuits, the control circuits also adjusting a relative duty of the plurality of converter circuits;

the plurality of pulse width modulators and the control circuits being in a single integrated circuit.

33. The DC to DC switching circuit of claim 32 further comprising:

current sense circuits, the control circuits being responsive to the current sense circuits to tend to minimize a difference of current between the plurality of interleaved converter circuits.

34. The DC to DC switching circuit of claim 33 wherein the control circuits control the plurality of pulse width modulators.

35. The DC to DC switching circuit of claim 32 further comprising: an integrator having an output responsive to the integral of an error signal, the error signal being responsive to the voltage across the common load and a desired voltage.

36. The DC to DC switching circuit of claim 35, wherein the control circuits is also responsive to the output of integrator.

37. The DC to DC switching circuit of claim 35 wherein a time constant of the integrator is adjustable by the selection of at least one component external to the integrated circuit.

38. The DC to DC switching circuit of claim 35 further comprising a differentiator having an output responsive to a rate of change of the voltage across the common load, the

control circuits also being responsive to the output of differentiator.

39. The DC to DC switching circuit of claim 38 wherein a time constant of the differentiator is adjustable by the selection of at least one component external to the integrated circuit.

40. The DC to DC switching circuit of claim 32 wherein the control circuits are also responsive to rapid decreases in the voltage across the common load to turn on the plurality of converter circuits, independent of the phase of the plurality of pulse width modulators.

41. The DC to DC switching circuit of claim 32 wherein the control circuits are also responsive to rapid increases in the voltage across the common load to turn off the plurality of converter circuits, independent of the phase of the plurality of pulse width modulators.

42. The DC to DC switching circuit of claim 32, wherein the plurality of pulse width modulators consist of a pair of pulse width modulators.

43. The DC to DC switching circuit of claim 32 wherein the commanded output voltage is controllable through an input to the integrated circuit.

44. The DC to DC switching circuit of claim 32 wherein the feedback circuit is in the single integrated circuit.

45. A circuit in a DC to DC converter having a plurality of interleaved converter circuits operating into a common load, comprising:

a plurality of pulse width modulators each controlling power switching devices of one of the plurality of interleaved converter circuits;

control circuits for adjusting a nominal duty cycle of the plurality of interleaved converter circuits;

the plurality of pulse width modulators and the control circuits being in a single integrated circuit.

46. A DC to DC switching circuit for controlling power switching devices in a DC to DC converter having first and second interleaved converter circuits operating into a common load, comprising:

a first pulse width modulator controlling the power switching devices of the first converter circuit;

a second pulse width modulator controlling the power switching devices of the second converter circuit;

a feedback circuit responsive to the voltage across the common load;

control circuits for controlling the first and second pulse width modulators responsive to the feedback circuit;

the control circuits also being responsive current measurements through the first converter circuit and the second converter circuit for adjusting the relative duty cycle of the first and second converter circuits;

the first pulse width modulator, the second pulse width modulator, the feedback circuit and the control circuits being in a single integrated circuit.